

**MOBILE APPLICATION FOR LEARNING OBLIGATORY AND SUNNAH
PRAYER FOR ELEMENTARY STUDENT
(CASE STUDY : SDN GAYAM 01 SUKOHARJO)**



**Submitted as a Partial Fulfillment of the Requirement for Getting Bachelor Degree of
Informatics Department Faculty of Communication and Informatics**

By :

TRI UTOMO

L200 154 006

**DEPARTMENT OF INFORMATICS
FACULTY OF COMMUNICATION AND INFORMATICS
UNIVERSITAS MUHAMMADIYAH SURAKARTA**

2019

APPROVAL PAGE

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ACCEPTANCE PAGE

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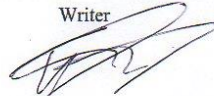
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MOBILE APPLICATION FOR LEARNING OBLIGATORY AND SUNNAH PRAYER FOR ELEMENTARY STUDENT
(CASE STUDY : SDN GAYAM 01 SUKOHARJO)

Abstrak

Agama adalah sesuatu yang penting dalam kehidupan yang dimiliki oleh seseorang untuk membangun hubungan dengan sang pencipta guna mendapatkan kedamaian dari segi jasmani dan rohani. Pembelajaran tentang agama khususnya ibadah untuk muslim harus diajarkan sejak usia dini. Sejak di sekolah dasar, siswa dituntut untuk mengetahui tata cara dan prosedur yang benar dalam melaksanakan ibadah. Siswa harus dibekali dengan pemahaman tentang perbedaan antara ibadah shalat wajib dan shalat sunnah. Di era modern seperti sekarang, berbagai perangkat teknologi dapat menunjang proses aktivitas pembelajaran untuk siswa salah satunya adalah *smartphone*. *Smartphone* memiliki sistem operasi yang berjalan didalamnya, salah satu yang populer saat ini adalah *android*. *Android* merupakan sistem operasi terbuka yang dapat digunakan oleh pengembang untuk mengembangkan aplikasi yang dapat membantu proses pembelajaran pada anak. Tujuan penelitian ini adalah membantu siswa untuk mempelajari shalat wajib dan Sunnah yang dikombinasikan dengan sentuhan teknologi sehingga lebih interaktif dan menarik minat belajar siswa. Aplikasi mobile pembelajaran shalat wajib dan Sunnah telah diuji dengan metode blackbox testing dan kuisioner. Aplikasi berjalan dengan baik serta 87,17% penerimaan responden mengindikasikan bahwa aplikasi membantu siswa dalam proses pembelajaran materi shalat wajib dan Sunnah.

Kata Kunci: Aplikasi *Mobile*, Ibadah, Siswa

Abstract

Religion is the important things in life that someone have to gain close relationship with the God to achieve the peace of hearts and soul. The Learning of religion activity especially prayer for Muslims must be thought since early age. Since elementary school, student must guide to know how the prayer etiquette and procedure do. Student must be given understanding about the difference between the kinds of obligatory and Sunnah prayer. In this modern era many devices possible to support in learning activity about prayer for student, one of them is *smartphone*. *smartphone* have Operation System(OS) that operating inside it, nowadays the most popular is *Android*. *Android* as the open-source operating system that can use by developer to develop application that can help children in learning activity. The purpose of this research is to help student in learning obligatory and sunnah prayer combine with mobile application technology that can be interactive

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Keywords: Mobile Application, Prayer, Student

1. INTRODUCTION

The development of information technology helps people to do their work in various fields of life. The simplicity and speed offered changes people's paradigm in information seeking (Andriyanto,2017). Information media providers evolve over time, including newspapers, tabloids, magazines, books, and the internet (Septri,2011). Technological advances produce various kinds of devices that can be utilized by humans. One of them that's quite widely used by society is a smartphone. Smartphone has ability to do many activities rather than other devices before. Features that can be used include internet access, photographing, sending messages, processing data, and storing documents (Nugraha,2014). The characteristic of smartphones is Operating System(OS) that work inside them. Many operating systems have been implemented on smartphones for examples Android from Google Inc. and IOS from Apple Inc. Android operating system is the most widely used around the world due to the large number of manufacturers using this operating system and can be found in various price classes (Tarigan,2014, p.4). Android is an open-source operating system that allows person to be able to create and develop their own programs or applications (Zainudin,2013).

Many smartphone applications have been made in various sectors to meet the needs of the community, one of that sector is in the field of education. Smartphone can have function as the learning media for student to learn education material (Supriyono, et all, 2014). When children grow up and entered to the primary school, they must be taught about the worship. Readiness of children in receiving material about worship can be assessed by the child's curiosity and begin to understand their obligations to Allah SWT. Based on observation, teaching materials in SDN Gayam 01 Sukoharjo is carried out by teachers in two ways that are guided from textbooks and explain it directly that many known as conventional teaching. Conventional teaching methods are considered less effective because students tend to be less interested in studying using textbooks and lecture. It can affect the learning outcomes does not meet the expectations (Marjan,2014). The lack of student interest in reading can arise from handbook that does not have illustrations or picture that can make a special attraction for students in reading and explanation by teachers who tend to be bored so they are considered less attractive. Based on the interview with Fitri Rahmani as religion teacher in SDN Gayam 1 explained that she meets barrier when students difficult to remember the long prayer in shalat especially in tahiyyat akhir parts and students less have

knowledge about shalat sunnah prayer. Learning activity in chapter of obligatory prayer is prioritized in class, however the learning about Sunnah prayer is also important. Sunnah prayer must be introduced early to the children because according to what was taught by the Prophet Muhammad SAW that Sunnah prayer as complement of the obligatory prayer. Procedures and etiquette for obligatory prayer and Sunnah prayer must be taught with visualization of the movement then students can imitate easily and practice the movement in the learning process especially for students who start learn to read (Kawuryan,2012). The fundamental differences between those two worship can be introduced to students in early age that can make students know the implementation time, commandment, differences and virtues. Therefore, it needs new added resources to be able as the media in studying prayer for students especially in technological space in order to making the learning activities more easy understanding and attract student interest.

In this research, researcher attempt to make technological innovations by making mobile applications of learning obligatory and sunnah prayer based on *android*. The similar application has been made before and uploaded in the playstore that have title “Belajar Shalat”. Its explain about shalat and their movement but its only contains of obligatory prayer context and illustrations in the form of images. In this research, the mobile application contains of definition, kinds and movement animations of obligatory and sunnah prayer alongside with audio and gif visuals, completed with supporting hadits for every movement, the postulates of the Al-Quran and Hadits that show the commandments and virtues of prayer, video tutorial from PDM (Pimpinan Daerah Muhammadiyah) Yogyakarta and quiz menu to test students understanding.

2. METHOD

The method used for software development are various, one of the method that well known is the waterfall method. Waterfall method is a sequential software development process, where progress is directed as it continues to flow down (like a waterfall) through phases of planning, modeling, implementation (construction), and testing. However, the Waterfall method is considered to be less compatible with this research because the waterfall method has the lack of flexibility in the stages of software development(Fahrurrazi,2012). Another methods in software development namely Agile Method, that uses of incremental and iterative work sequences in software development that can be more flexible. Considering the flexibility affects by agile method become

one of the reason researcher choose this method because if an error occurs, it can get an immediate evaluation by returning to the previous stage.

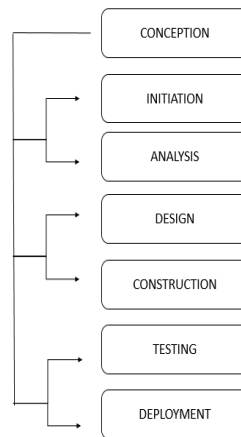


Figure 1. Agile Methodology

2.1 Conception

The first step is conception phase, the making of concept and idea of the Mobile Application for obligatory and Sunnah prayer. Its focus on the early description include how materials to be shared, layout and lifecycle of the application before get to formulated in development process. The purpose of the application is determined in this phase.

2.2 Initiation

The Second is Initiation phase, Concept will be get matured to be comes the final form of the application. This phase constructs the scheme like use case and activity diagram of the application to guide developer in application production.

2.2.1 Use Case Diagram

Use case is a description that represent the interaction of users with the system or application that will be built. Users be able to access 3 menus at the first page that are shalat menu, about menu and exit menu.

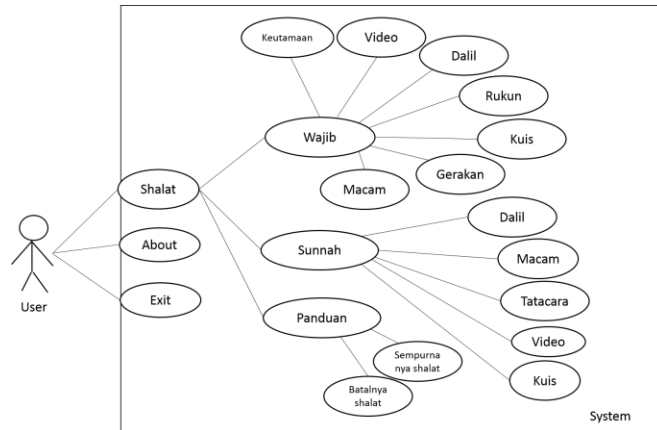


Figure 2. Use case diagram of the system

2.2.2 Activity Diagram

The activity diagram of the application determined since early phase of development. It has description of the programming process should do according the systematical flow to guide developer in application production.

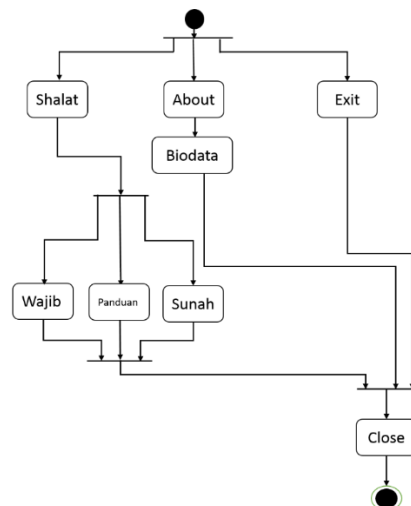


Figure 3. Activity Diagram

2.3 Analysis

The third phase is analysis, its focus on analyze the requirement needs and data gathering by observation in SDN Gayam 01 Sukoharjo and interview with Fitri Rahmani as religion teacher to collect related data as a reference in making application. This phase also determines the hardware, software and other tools that needed to prepare the application production stage.

Table 1. Tools and Materials

Hardware		Software
Laptop	Smartphone	
Intel Core i3	RAM 3 GB	Windows 8.1
RAM 4 GB	Android 6.0.1 Marshmallow	Android Studio 3.1
	CPU Octa-Core Max 1.40 GHZ	Microsoft power point 2016
		Corel Draw X7
		Notepad ++

2.4 Design

The next is design phase, its focus on making of the application design, realization of layout design, activity design and the functionality of the system. The mockup of the application and UML created to help developer in having detail description during application production.

2.4.1 Obligatory Prayer Menu

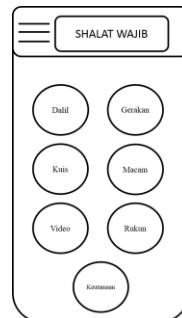


Figure 4. Obligatory Prayer Menu

Obligatory Prayer Menu consists of 7 menus include Dalil menu that show the Al-Quran and Hadits reference related to obligatory prayer, Rukun menu shows the requisition that must held during shalat, Quiz menu give test by giving some question about obligatory prayer, Macam menu display the kind and procedure of obligatory prayer, Video menu to show video related to obligatory prayer based from PDM Yogyakarta that affect the validity of the movements shalat is correct, Gerakan menu display the order of the shalat movements illustrations gif along with animations and audio visuals to giving description to doing movements in correct condition and keutamaan menu to show virtue of shalat based on Al-Qur'an.

2.4.2 Sunnah Prayer Menu

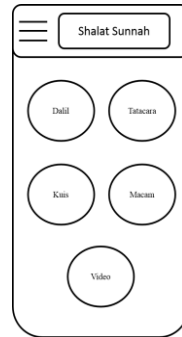


Figure 5. Sunnah Prayer Menu

Sunnah prayer menu contains 5 button in the main menu layout. For dalil, kuis, and video have the same interface with the obligatory prayer but in different contents. Macam menu displays the kind of the sunnah prayer. The last is Tatacara menu displays the list of the order of the shalat.

2.5 Construction

The fourth phase is construction, at this phase is carried out the translation of system design into the languages that can be recognized by computers. This set the java code and xml code of the application to be able to work. Debugging process also done in this phase to seeking the bugs and error that may exist. After that, the internal test is carried out to test the function of the system to find out the capability of the application work.

2.6 Testing

The testing phase is done in two ways, there are black box testing and questionnaire. Black box testing is a testing technique that designs test cases based on the information from the specification (Srinivas & Jagruthi,2012). With black box testing, the software tester should not (or does not) have access to the internal source code itself. Student in SDN Gayam 01 as the object tester will test the UI of the application to observe the functionality of each feature that application have to determine which part of the system needs to be evaluated.

Meanwhile when students tried the application, questionnaire are given to measure user acceptance toward the application. The Questionnaire represents application

performance, UI (User Interface) and Ability. In making questionnaire, its use of Likert Scale that easy to use to achieve data. Likert Scale is a method that use many questions to measure individual or population response with 5 level of choices includes STS(Sangat Setuju), TS(Tidak Setuju), N(Netral), S(Setuju), and SS(Sangat Setuju) (Likert, 1932).

2.7 Deployment

Deployment phase is carried out when the application has been completed and ready to be released for the user. Its include the implementation of the application, objectives target, and how application can recognize with the user environment. Student can use this application as other resources aside from books in learning prayer chapter. Although it called the last phase but the maintenance is still done.

3. RESULT AND DISCUSSION

The mobile application for learning obligatory and sunnah prayer was made and bring the result that allow user to gain information, the list of every prayer movement and make clear difference between obligatory and sunnah prayer. In order to reduce errors, blackbox testing is done by writer itself as developer and students in SDN Gayam 01 Sukoharjo with guidance from writers. The result of the blackbox testing is shown below:

Table 2. Blackbox Testing

No	Scenario	Test case	Output	Result
1	Access Test	Click application icon	Success enter to the systems	Valid
2	View 3 button of start menu	Click 3 button of <i>shalat</i> , about and exit	Enter to every pages in each button	Valid
3	Access obligatory prayer main menu	Click <i>shalat</i> button	Systems shows obligatory prayer page layout	Valid
4	Access <i>dalil</i> menu	Click <i>dalil</i> icon	Systems shows <i>dalil</i> page that contains postulates from Al-Qur'an and Hadits	Valid
5	Access <i>gerakan shalat</i> menu	Click <i>gerakan shalat</i> icon	Systems shows list of movements order and prayer material	Valid
6	Access quiz menu	Click quiz icon	Enter to kuis layout which contains questions and 4 choice answers	Valid
7	Access <i>macam</i> menu	Click <i>macam</i> icon	Systems shows 5 obligatory prayer such as <i>niat</i> , rakaat, and time	Valid

8	Access video menu	Click video icon	Enter to the online video about prayer connected to channel youtube of PDM Yogyakarta	Valid
9	Access <i>rukun</i> menu	Click <i>rukun</i> icon	Systems shows list of <i>rukun</i> that must done in prayer	Valid
10	Access <i>keutamaan</i> menu	Click <i>keutamaan</i> icon	Systems shows 4 postulates from Al-Qur'an regarding to virtue of prayer	Valid
11	Navigation Menu	Click stripes icon in the top left corner	Systems shows obligatory, <i>Sunnah</i> and <i>panduan</i> menu	Valid
12	Access <i>Sunnah</i> prayer	Click <i>Sunnah</i> prayer menu in navigation menu	Success enter to the <i>Sunnah</i> prayer main menu	Valid
13	Access <i>dalil shalat</i> <i>Sunnah</i> menu	Click <i>dalil</i> icon	Systems shows postulates regarding <i>Sunnah</i> prayer	Valid
14	Access <i>tatacara</i> menu	Click <i>tatacara</i> icon	Systems shows list of prayer such as their movements	Valid
15	Access <i>macam</i> menu	Click <i>macam</i> icon	Systems shows kind of <i>Sunnah</i> prayer such as their information	Valid
16	Access quis <i>shalat Sunnah</i> menu	Click quis icon	Enter to the quis layout which contains questions with 4 choices answer	Valid
17	Access <i>panduan</i> menu	Click <i>panduan</i> menu in navigation menu	Systems shows 2 button which are <i>sempurnanya shalat</i> and <i>batalnya shalat</i>	Valid
18	Access <i>sempurnanya shalat</i> menu	Click <i>sempurnanya shalat</i> button	Systems shows a list of perfect requisition regarding <i>shalat</i>	Valid
19	Akses <i>batalnya shalat</i> menu	Click <i>batalnya shalat</i> button	Systems shows a list of reason <i>shalat</i> being retract	Valid

Testing also conducted to Fitri Rahmani, Religion Teacher in SDN Gayam 01 Sukoharjo with the results are valid for every features and satisfied with detailed information contained inside the application. The application had been validated by head office of LPIK UMS, Mr.Dodi about the data contained inside application.

3.1 Results of Application Interface



Figure 6. Splash Screen & Opening Menu

The splash screen is the first layout that will be faced by user as introducing of the application that indicating with the logo. The duration of this splash screen is about 1.5m/s before continue to the opening menu. Then it will move to Main Menu when shalat menu clicked.

3.1.1 Main Menu

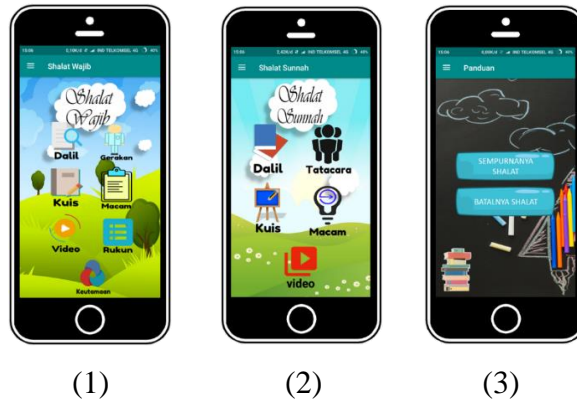


Figure 7. (1) Shalat Wajib Menu, (2) Shalat Sunnah Menu, (3) Panduan Menu

Main menu of the application consists of 3 main menu include shalat wajib menu, shalat Sunnah menu and panduan menu. Its serves user to access all of them by click a navigation bar in the left corner. Every main menu has its own sub menu which refers to different function.

3.1.2 Gerakan Shalat Menu

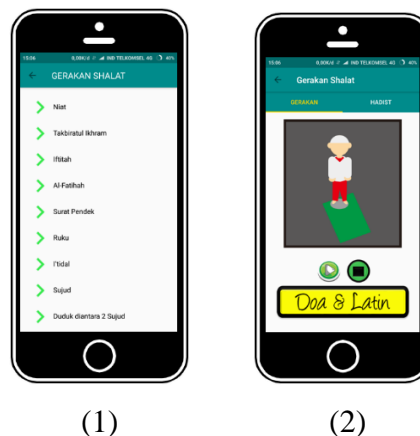


Figure 8. (1) List of prayer movements orders, (2) Illustration Page

Gerakan Shalat Menu serves users to access the order of the shalat movement related with obligatory prayer. For example, in case when user click Iftitah prayer will bring the result

with the illustration of the iftitah movement includes related hadits, the prayer audio regarding iftitah, also page that consists of the Arabic, Latin, and Meaning of iftitah prayer.

3.2 Questionnaire Testing

The testing method in this research is conduct with the guidance from writer for every user that allow them to access every features inside application, after that users are asked to tell their user experience by assigning questionnaire. The users for this testing phase are 5th grade students of SDN Gayam 01 Sukoharjo which amounts of 20 children. The questionnaire results are shown below:

Table 3. Questionnaire Results

Respondent	Questions					
	Q1	Q2	Q3	Q4	Q5	Q6
Respondent 1	S	S	S	N	N	S
Respondent 2	S	S	S	S	S	S
Respondent 3	S	SS	SS	SS	SS	S
Respondent 4	S	SS	S	SS	S	S
Respondent 5	S	N	S	S	N	SS
Respondent 6	S	N	N	S	N	S
Respondent 7	S	SS	SS	S	SS	SS
Respondent 8	S	S	S	S	S	SS
Respondent 9	SS	S	SS	SS	SS	SS
Respondent 10	S	S	S	SS	SS	S
Respondent 11	S	S	SS	SS	SS	SS
Respondent 12	S	S	S	SS	S	SS
Respondent 13	S	S	S	SS	S	SS
Respondent 14	S	S	S	SS	S	SS
Respondent 15	SS	S	SS	SS	S	SS
Respondent 16	SS	SS	SS	SS	SS	SS
Respondent 17	S	SS	SS	S	S	SS
Respondent 18	S	S	SS	SS	S	S
Respondent 19	S	S	SS	SS	SS	SS
Respondent 20	S	SS	SS	SS	SS	SS

Code refers to:

- Q1 : Is application display already clear enough and easy to understanding?
- Q2 : Is users can access every feature inside the application?
- Q3 : Is the application interesting and appropriate to use in educational space?
- Q4 : Is language used easy to understand?
- Q5 : Can users use the application easily?

Q6 : Is user get new knowledge about prayer from this application?

Based on the questionnaire testing results, the questionnaire items must be tested their validity in order to get the highest rate validity and accurate fulfill the needs of testing phase. Validity is an index that represents the measurement instruments actually accurate in measure some of data or not (Ristya,2011). Questionnaire items are valid if r count \geq value of r table. Before comparing them, it must calculate df (degree of freedom) with formula $df = N - 2$, In this research is used 20 respondents then $N = 20$, $df = 20 - 2 = 18$. Then it used r table which has value $df = 18$ and from r table have been found the value for $df = 18$ is 0.443.

Table 4. Questionnaire Validity Test Based on The r -table Rule

Questions	R	Critical value significance 0.05	Status
Q1	0.487	0.443	Valid
Q2	0.673	0.443	Valid
Q3	0.849	0.443	Valid
Q4	0.678	0.443	Valid
Q5	0.877	0.443	Valid
Q6	0.500	0.443	Valid

From the table above can carried out that the validity test results are “ r -count value” more than “ r -table” which means each questionnaire items are in valid condition to fulfill the requirement needs of testing phase.

3.3 User Acceptance

The formula to calculate the questionnaire results is:

$$\text{Percentage} = \frac{\sum \text{Total Value} \times 100 \%}{S\text{Max}}$$

SMax is obtained from the amount of student that are 20 children and maximum weight which is 5. Therefore, formula for determine $S\text{Max} = 20 \times 5 = 100$.

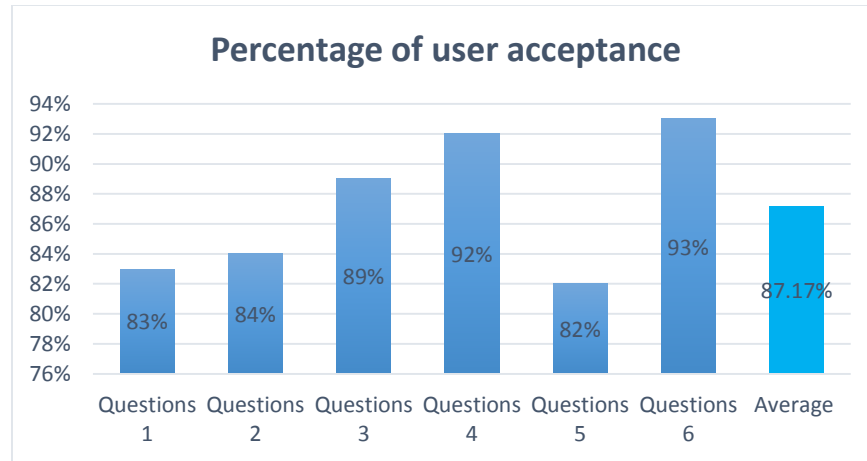


Figure 9. User Acceptance Chart

From the table above can be seen the highest value of the percentage is Q6 that belongs to “is user get new knowledge about prayer from this application?” which is 93% and for the lowest value of the percentage is Q5 that belongs to “is users can use application easily?” which is 82%. From the data, the interval between the highest and lowest value is about 11% that represent the application is helpful for students in gain new knowledge about obligatory and Sunnah prayer, although some of them still have little bit difficulties in using application. Overall, the average of percentage is indicated high rates in acceptance which is about 87.17% that indicates this research can be as new breakthrough in learning obligatory and Sunnah prayer in education fields.

4. CONCLUSION

Based on the result and discussion in this final project, the black box testing indicating that the features inside application is work as it should. Mobile application for learning obligatory and Sunnah prayer can operate in all mobile devices which must have minimum standard requirement Android API 19 or Android KitKat and accessed in portrait mode.

Meanwhile, in questionnaire testing indicating 93% are agree about this application to gain new knowledge in Obligatory and Sunnah prayer that students never know before, 92% are agree about this application have language that suitable with students age that affect easily in accepting information, 89% are agree about this application can attract student in learning interest and worthy to use in educational scope.

Mobile application for learning obligatory and Sunnah prayer can be operated mostly in offline mode but online mode when access the video features then can be used in educational fields to conduct new learning method to be more attractive and fun.

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